

Artistic Style Transfer

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Motivation

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Using a biologically inspired vision model, called “Deep Neural Networks,” an artificial system can be trained to learn different styles of painting and subsequently recreate images rendered in that style.

The model is successful because it is able to distinguish between “style” vs. “content”



Algorithm Overview

Input:

Content Image



Style Image

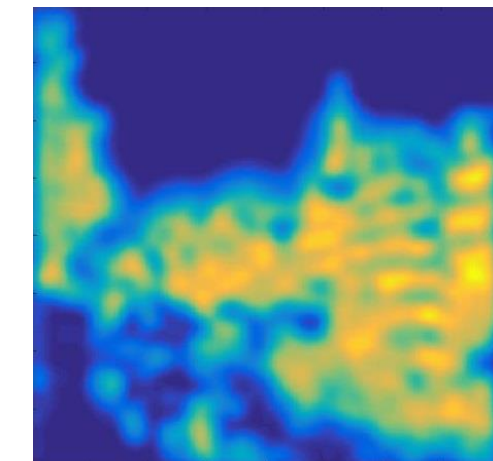


Hallucination



Initialization:

Segmentation



Color transfer



Add noise



Loop over scales:

Loop over patch sizes:

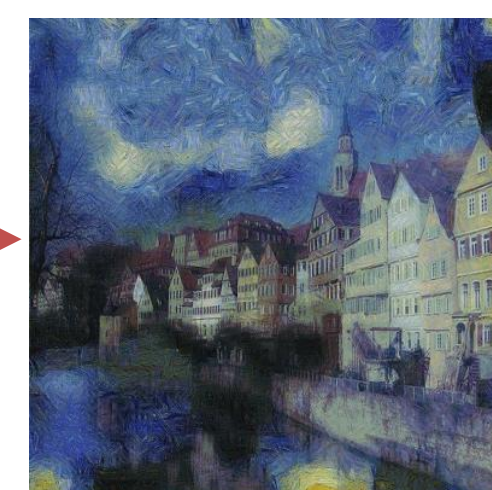
Patch Matching



Style Synthesis



Content Fusion



Color Transfer

Denoise

Increase patch size

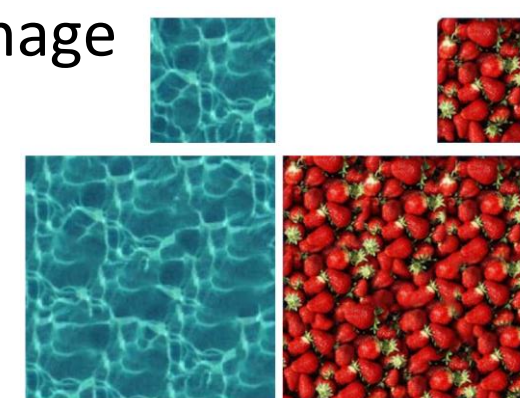
Resize Estimate (increase scale)



Related Work

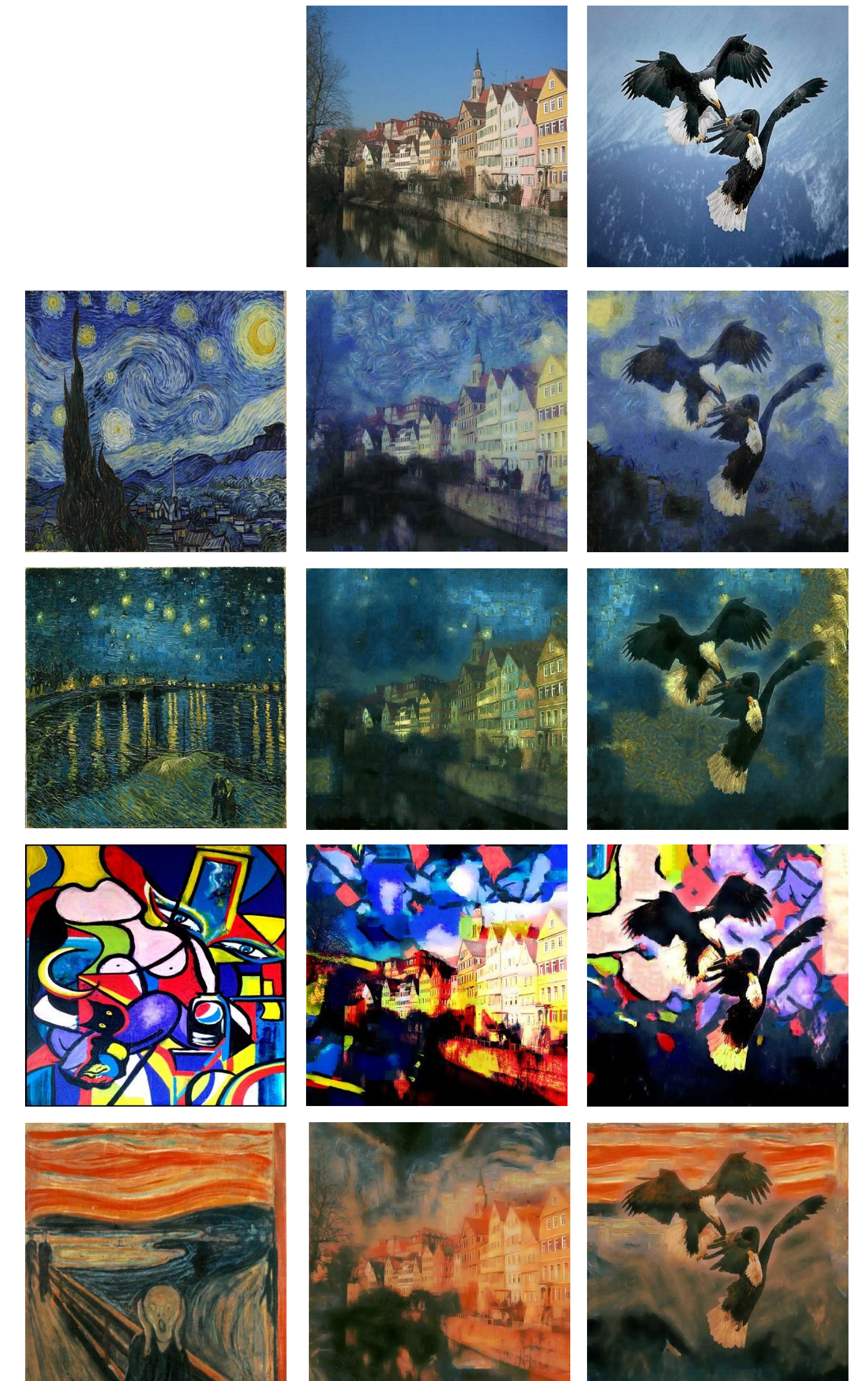


Using a modification (Elad) of Texture-Synthesis (Kwatra), it is possible to get fast and comparable style-transfer results. This method focuses on separating information-poor areas to hallucinate the style and high content areas where it keeps the original image



Experimental Results

Chosen parameters: 3 scales, 2 patch sizes (except smallest scale uses 3 patch sizes), 10% NN noise, 25%+75% hallucination averaging



Hallucination percentage influence :

0%

10%

25%

50%

